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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,890	12/09/2003	Ronald Glas	GS 0647 A	4671

20676 7590 03/12/2007  
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EXAMINER

PILKINGTON, JAMES

ART UNIT PAPER NUMBER

3682

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/731,890		GLAS ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	James Pilkington		3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Prosecution Application***

The request filed on 1/17/07 for a Continued Examination (RCE) is accepted and a RCE has been established. An action on the RCE follows.

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pins having a different spacing (claim 15) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The drawings currently only show pin pairs which are spaced equally apart. Is the applicant attempting to claim what has already been disclosed as prior art in Figure 3 wherein two pins are touching (pin pair) and then the next pin is space apart from the two touching pins?

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

Art Unit: 3682

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

2. Claim 13 objected to because of the following informalities: line 21 reads "the pins ends as detected" should be - - the pin ends are detected- -. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedmann, USP 6,435,994 B1, in view of Cote et al, USP 6,356,848 B1.

Re clm 1, Friedmann discloses a continuously variable transmission (100) that includes:

- two conical pulley pairs (101 and 102)
- spaced parallel axes (C15/L14-35)
- an endless torque-transmitting means (103)

Friedmann does not disclose a sensor for detecting the speed of the endless torque-transmitting means.

Cote teaches a sensor (22) positioned opposite to and facing the endless torque-transmitting means for detecting the speed of the endless torque-transmitting means (18) for the purpose of measuring the speed of the chain as it passes the sensor (C5/L16-17).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Friedmann and provide a sensor positioned opposite to and facing the endless torque transmitting means for detecting the speed of the endless torque-transmitting means as it passes the sensor, as taught by Cote, for the purpose of measuring the speed of the chain.

Re clm 2, Friedman discloses a linear guide bar (see Figure 5) for guiding a slack linear strand of the endless torque-transmitting means (103).

Friedmann does not disclose a sensor carried on a guide bar that guides a slack strand of the endless torque-transmitting means and that can pivot about an axis that is parallel to the axes of conical pulley pairs.

Cote discloses the sensor (22) is carried on a guide bar (19) that guides a slack strand of the endless torque-transmitting means (18) and that can pivot about an axis that is parallel to the axes of the conical pulley pairs (at 51).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Friedmann and provide a sensor that is carried on a linear guide bar that guides a slack linear strand of the endless torque-transmitting

Art Unit: 3682

means and that can pivot about an axis that is parallel to the axes of the conical pulley pairs, as taught by Cote, for the purpose of allowing the chain to move to vary the transmission ratio (C4/L44-50).

Re clm 3, Friedmann discloses the guide bar (104) is carried on a fixed support (114) positioned between the conical pulley pairs.

Re clm 4, Friedmann discloses the torque-transmitting means (103) is a plate link chain (Figure 1) that includes pins (Figure 1) that interconnect adjacent chain links.

Friedmann does not disclose that the sensor detects pins as they pass the sensor.

Cote teaches that the sensor (22) detects pins (raised magnetic members 29a-e) as they pass the sensor (22) for the purpose of measuring the speed of the chain (C5/L16-17).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Friedmann and take the magnetic members (29a-e) of Cote and install them on the chain link (103) of Friedmann for the purpose of measuring the speed of the chain.

Re clm 5, Cote discloses that the sensor (22) is a proximity sensor (C5/L48)

Re clm 6, Cote discloses the sensor (22) is connected to a control unit (110) in which data is stored and determines the speed (C9-10).

Re clm 7 and 8, Cote that the number of magnets and the distance apart is stored in the control unit (110) (C5-10).

Re clm 9, Friedmann discloses that the fixed support (114) is a tubular member (C16/L20-21). The examiner notes that an oil pipe is a tubular member based on the definition of the word pipe in Merriam-Webster's Collegiate Dictionary (10<sup>th</sup> ed.). Merriam-Webster defines a pipe as a "tubular or cylindrical object, part or passage."

Re clm 10, Friedmann discloses the guide bar (104) is displaceable in a direction that is substantially perpendicular to the movement direction of the endless torque-transmitting means (103) (see Figure 3).

Re clm 11, Friedmann discloses the pivot axis (114) of the guide bar (104) is positioned between the pulley axes and is within a loop defined by the endless torque-transmitting means (103) (see Figure 2).

Re clm 12, Friedmann discloses the end faces of the pins are in frictional engagement with the conical surfaces of the conical disks (pulleys 101 and 102).

5. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedmann, USP 6,435,994 B1, in view of Affeldt et al, USP 5,904,236.

Re clm 13, Friedmann discloses a continuously variable transmission (100) that includes:

- two conical pulley pairs (101 and 102)
- spaced parallel axes (C15/L14-35)
- an endless torque-transmitting means (103)

- wherein the axial spacing between respective conical disks defining the pulley pairs can be changed inversely to change the transmission ratio of the transmission (see Figure 3)
- wherein the endless torque transmitting means moves radially relative to the axes of rotation (see figure 3) and includes a plurality of spaced parallel pins (see Figure 2 where pins are being shown holding the links of the chain 3/103 together) having a predetermined pin spacing and having pin ends that frictionally engage the conical surfaces of the disks during movement of the endless torque-transmitting means (see Figure 1 where it shows the pins of the chain 3/103 in contact with the pulleys 2a and 2b)
- a guide bar (104) pivotable about a pivot axis that is parallel to the axes of rotation of the conical disk pairs (see Figure 3) for linearly guiding the endless torque-transmitting means as it moves between the disk pairs (101 and 102)

Friedmann does not disclose a sensor carried by the guide bar and positioned opposite to and facing the ends of the pins of the endless torque transmitting means for detecting the pins as they pass the sensor during movement of the endless torque-transmitting means, wherein the sensor provides an output to a control unit in which data relative to pin spacings are stored, whereby the linear speed of the endless torque-transmitting means is determined based upon the stored pin spacing and the pin ends are detected by the sensor as the ends of the pins of the torque-transmitting means pass the sensor.

Affeldt teaches a sensor (23) carried by a guide bar (bar under chain in Figure 1) and positioned opposite to and facing the ends of the pins (13) of an endless torque transmitting means (chain 14) for detecting the pins as they pass the sensor during movement of the endless torque-transmitting means, wherein the sensor provides an output to a control unit in which data relative to pin spacings are stored, whereby the linear speed of the endless torque-transmitting means is determined based upon the stored pin spacing and the pin ends are detected by the sensor as the ends of the pins of the torque-transmitting means pass the sensor (C3/L66-67, C4/L2-4, C5/L30-33, C6/L14-17) for the purpose of providing a direct measurement of the position, displacement and speed of the chain (C4/L2-4).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Friedmann and provide a sensor carried by a guide bar and positioned opposite to and facing the ends of the pins of an endless torque transmitting means for detecting the pins as they pass the sensor during movement of the endless torque-transmitting means, wherein the sensor provides an output to a control unit in which data relative to pin spacings are stored, whereby the linear speed of the endless torque-transmitting means is determined based upon the stored pin spacing and the pin ends are detected by the sensor as the ends of the pins of the torque-transmitting means pass the sensor, as taught by Affeldt, for the purpose of providing a direct measurement of the position, displacement and speed of the chain.

Re clm 14, both Friedmann and Affeldt disclose that the pins of the endless torque-transmitting means are uniformly spaced (Figure 2 of Friedman, Figure 1 of Affeldt) from each other at a predetermined uniform spacing (pre determined by link).

6. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedmann '994 B1, in view of Affeldt '236 and further in view of Cole, Jr, USP 4,708,701.

Re clm 15, Friedmann in view of Affeldt discloses all of the claimed subject as disclosed above.

Friedmann in view of Affeldt does not disclose that the pins of the endless torque-transmitting means have different spacings.

Cole, Jr. teaches pins (45 and 47) of an endless torque-transmitting means (chain belt) have different spacings (45 and 47 are spaced next to each other and then there is a different spacing from pin 47 to the next pin 45, see Figure 3, pins are the same as prior art Figure 3 of instant application) for the purpose of providing pin arrangement which allows for the belt to run quietly (C4/L60 – C5/L2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Friedmann in view of Affeldt and provide for the pins of the endless torque-transmitting means to have different spacings, as taught by Cole, Jr., for the purpose of providing pin arrangement which allows for the belt to run quietly.

Re clm 16, the resulting device of Friedmann in view of Affeldt and further in view of Cole, Jr. would have to have a control unit that has a stored number of equal, successive pin spacings for determining the linear speed of the endless torque-transmitting means based upon detection by the sensor of a number of pins having at least one of the stored pin spacings in order for the sensor to adequately detect the chain speed.

***Response to Arguments***

7. Applicant's arguments filed August 10, 2006 have been fully considered but they are not persuasive.

8. The applicant argues that the Cote et al reference does not relate to a continuously variable transmission having the structure as claimed (page 9 line 20 – page 10 line 2) and does not disclose or even suggest an arrangement whereby the linear speed of an endless torque-transmitting means is detected (page 10 lines 2-15).

The examiner agrees with the applicant Cote et al does not disclose the structure of the CVT system. The examiner directs the applicant to the office action above where the Friedmann et al reference is being used to disclose the structure of the CVT system. With regards to the detecting the linear speed of the chain the examiner directs the applicant to the column 5 lines 16-17 in the Cote et al reference where it states "the speed sensor measures the speed of the chain."

Art Unit: 3682

9. The applicant argues that the Cote and Friedmann references do not disclose that the sensor is positioned opposite to and facing the endless torque-transmitting means and interacts with the chain (page 10 lines 16-22).

The examiner asserts that the Cote reference does indeed disclose that the sensor is positioned opposite to and facing the endless torque-transmitting means (the chain interacts with the sprocket wheel which the sensor is positioned opposite to and facing the chain) and detects the speed as it passes the sensor (the chain passes around the sensor). The examiner would also like to note that the features upon which applicant relies (i.e., "interacts with the chain") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The rejected claim states that "wherein the sensor is located at a position *relative to the path of movement* of the endless torque-transmitting means."

10. In response to applicant's argument that the Cote et al reference is nonanalogous art (page 12 lines 1-20), it has been held that a prior art reference must either be in the field of applicant's endeavor **or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned**, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the Cote et al reference

relates to the particular problem since the reference discloses a sensor for detecting the speed of an endless torque-transmitting means.

11. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation is provide in the Cote reference as stated above. Cote clearly states that the purpose of the detector is for measuring the speed of the chain as it passes the sensor (C5/L16-17). One of ordinary skill in the art could indeed look to the Cote reference for the teaching of a speed detecting device which measures the speed of the chain as it passes a sensor.

12. In response to what the applicant has laid forth as being the resulting device of the combination of Friedmann in view of Cote. The examiner directs the applicant back to independent claim 1. No where in the claim does it say that the sensor must detect the ends of the pin. The claim says "...said device comprising a sensor positioned opposite to and facing the endless torque-transmitting means for detecting the linear speed of the endless torque-transmitting means as it passes the sensor, wherein the

sensor is located at a position relative to the path of movement of the endless torque-transmitting means that is independent of the rotational speed relationship of the conical pulley pairs.” The phrase “a sensor positioned opposite to and facing” means they have to be opposite and facing but not directly facing each other. The phrase “for detecting the linear speed” also does not mean that it must directly detect the speed, the device must only be capable of detecting the linear speed which Cote is capable of doing. And the phrase “relative to” is a broad phrase and only means that the sensor has to be somewhere near the path of movement and Cote’s sensor is clearly near the path of movement of the chain.

13. Applicant's arguments with respect to new claims 13-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

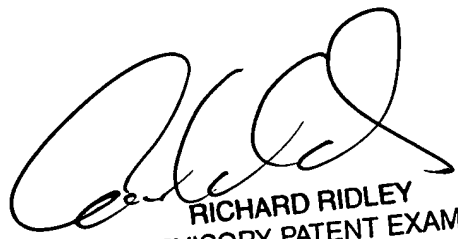
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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SUPERVISORY PATENT EXAMINER